"The congestive form of the disease, and the other forms, if they pass into the stage of collapse, usually terminate fatally, and are but little under the control of art. In those cases, the method of treatment usually followed by Spanish practitioners, and adopted by the physicians of Mobile, seems to promise more success than any other."

The practice to which reference is here made, consists in a dose of calomel, given in the early stage, followed by castor oil, olive oil, or salts and senna, to promote its free action upon the bowels; when the rigors continue long, a warm mustard bath. Perspiration is promoted by warm drinks—and cups are applied to the cervical or epigastric region, as they seem indicated. During the period of calm, the lighter diffusible stimulants are usually given with blue pill. The transition of the disease into the third stage, or that of collapse, is carefully watched, and met with an active stimulant treatment. Brandy-toddy or julep is usually preferred. This is to be continued—its effects being carefully watched—until the depressing tendency of the disease is fully arrested, when small quantities of chicken or oyster broth are cautiously given.

A tolerably full bibliography of the leading works on yellow fever close this part. In this, we are gratified to find Dr. Bartlett doing justice to the publications on this subject of Dr. William Currie, of Philadelphia—a medical writer whose talents have been much underrated by the profession in this country, while the valuable contributions made by him, to our knowledge of many of the more important of our endemic diseases, have been strangely overlooked. Dr. Currie, unfortunately out-lived his mental powers—and the state of fatuity in which he was known to most of the American physicians now living, may account in some measure for the low estimate in which he is held by many as a medical observer.

Speaking of his memoirs of the yellow fever, and of his observations on the causes and cure of remitting or bilious fever, &c., Dr. Bartlett remarks:—

"Both these volumes are marked throughout by careful observation, by a correct philosophy, and by sound sense. Dr. Currie was a cotemporary of Dr. Rush, and a practitioner in the same city. His general descriptions of disease are quite as good, to say the least, as those of his distinguished fellow citizen, and his medical philosophy infinitely sounder and more rational. He recognized clearly the radical difference between bilious remittent and yellow fever."

In the correctness of these remarks, we fully coincide.

Throughout the volume before us, there is a spirit of candour and impartiality displayed by the author—which, with the general truthfulness and accuracy of his delineation of the several diseases embraced in it, presses it strongly upon the favourable notice of the medical profession. We recommend it to our readers as one of the best—certainly the most complete, systematic, and methodical treatises on the Fevers of the United States, that has yet appeared. D. F. C.

Art. XV.—*The Human Brain; its Structure, Physiology and Diseases, with a Description of the Typical Forms of Brain in the Animal Kingdom.* By Samuel Solly, F. R. S., Senior Assistant Surgeon to St. Thomas's Hospital, etc. etc. With numerous Wood Engravings. Second Edition. London, 1847: 8vo., pp. 688.

The first edition of this work was published in 1836, and was noticed in our number for May, 1838. Its object was the diffusion of a sounder and more correct method of studying the anatomy and physiology of the most important system in the body. Though eleven years have elapsed since the appearance of the first edition, the same barren and slovenly method of describing the structure of the nervous centres still, we suspect, too generally obtains. The old, unphilosophical and totally inadequate plan of slicing the brain, is still too frequently pursued; and the effort to trace the relations which exist between the structure of the different component parts, and their functional manifestations, too constantly neglected. It has been justly observed by Foville, that "sections of the brain teach little more than sections of the body would;" and Dr. Craigie has proclaimed the absurdity of the present system in the following forcible language: "To the mind," he says, "which is unfettered by prejudices in favour of ancient opinions, it appears singular that the enlightened physiologists of the eighteenth century should talk of the medullary and cortical matter of an organ in which nothing like marrow or bark can be seen; and it is more extraordinary still, that the accurate distinctions which anatomy has introduced since the commencement of the nineteenth century have not demonstrated the evil of retaining terms which are improper, as mere nominal distinctions; but which are doubly erroneous as the relics of an unfounded and exploded theory. Is the error of likening the brain to marrow, obviated by shrouding it under the learned denomination of medulla and medullary? Or is the absurdity of supposing the gray matter of the convoluted surface, a bark, or envelope, to the white pith, diminished in the slightest degree by calling that gray matter cortical? The common sense of the present day will not hesitate to answer these questions in the negative."

The plan of study of the anatomy of the cerebro-spinal axis, advocated and pursued by Mr. Solly, is founded on the rational and philosophical basis of investigating its structure, in man, by the light of comparative anatomy. By beginning with the structure and functions of a nervous system in the lowest scale of the animal series, and gradually ascending to the higher and more complex, noting each addition, and its corresponding increase of function, the anatomy of the human brain is at once simplified and invested with general interest. "By pursuing this course," says Mr. Solly, "we shall be rewarded by finding that the encephalon, this apparently most complicated organ in the human being, is but a gradual development from an extremely simple fundamental type on one uniform and harmonious plan, and that the seeming complexity of the cerebro-spinal axis in man, really arises from the great concentration, as opposed to the extreme diffusion of its component parts in the lower order of animals; for in no particular are the higher orders more strikingly distinguished from the lower than in the concentration of function within circumscribed spaces." (Preface, p. x.)

In Part I. the physical, chemical, and microscopical character of the component matter of the brain—neurine, the substance in which the peculiar powers of the brain and nerves reside—is investigated. The two kinds of neurine, the vesicular and tubular, are described. Late researches have amply sustained the views advanced by our author, in his first edition, of their relative function,—that the cineritious neurine is the source of power, and the medullary neurine merely the conductor of it. This view of the subject is now almost universally admitted. The whole of this chapter on the structural anatomy is an admirable epitome of our knowledge on the subject.

Part II. is devoted to the comparative anatomy of the nervous system. There Mr. Solly has shown much discrimination and judgment, by not entering too much in detail into the immense varieties of form which the nervous system of the whole animal kingdom presents; but has used comparative anatomy only as an ally to assist and simplify the study of the human brain. The incorrect or limited application of the term ganglion is objected to, and a more comprehensive meaning, in accordance with the views at present held by physiologists, advocated. It has been too much the habit to regard a peculiar rounded form as necessary to the constitution of a true ganglion. A wrong impression is thus conveyed. "But if the term ganglion be correctly applied to the nodules of neurine, or centres of power in the lowest animals, it is equally correct to apply it to those of the highest; and it therefore follows that the human brain is but a series of large ganglia."—(p. 32.) Mr. Solly repeats the opinion expressed in the former edition, that in extending the term ganglion, so as to apply it to any collection of cineritious neurine into a circumscribed mass, whatever form or arrangement it may assume, we would very considerably simplify the anatomy of the human brain. He proposes to name the cineritious neurine which forms the convoluted surface of the hemispheres of the brain, the hemispherical ganglia, the convoluted appearance being merely accidental, and for the purpose of convenient packing. "There would be," he justly observes, "just as much reason to deprive the semi-lunar ganglion of its generic title, and give it a name merely in accordance with its appearance, as there is in separating the hemispherical ganglia of the human brain from their analogous ganglia in the lower animals, and designating them by a term which gives a mystery to their character they do not deserve. * * * It is a distinct ganglion, and as such ought to have a name." And he adds, in rather homely phrase, "There would be as much sense in calling the *occipito frontalis muscle* the *cortical substance of the cranium*, as there is in calling the *hemispherical ganglion* the *cortical substance of the brain.*"—(p. 33.) If a better name should be proposed by any other anatomist, Mr. S. expresses his willingness to adopt it. We regret that we cannot follow Mr. Solly throughout this chapter, which is replete with interest and with information essential to a right comprehension of the human nervous centres. It is itself an admirable abstract of the comparative anatomy of the nervous system, which the student must master, to study with pleasure and interest that system in man,—and we can offer no digest of it with any advantage to the reader, but can conscientiously recommend it to his attentive perusal. We should, however, direct particular attention to his excellent, and, in some important respects, original description of the medulla oblongata in the ascending series. It must be gratifying to Mr. Solly to find that his view of the homology and physiology of the cerebral ganglia of the fish, first enunciated in the former edition of 1836, is now very generally recognized.

Part III. treats of the protective apparatus of the human brain; and

Part IV., on the weight of the human brain, is enriched with the excellent tables of Dr. Bird.

In Part V. the configuration of the encephalon is considered, and is illustrated by several admirable drawings from Foville, and the author.

Part VI. is entitled, Dissection of the Human Brain and Spinal Cord, and is a most lucid and unexceptionable description of the anatomy of the great nervous centres in man. It is an accurate and simple analysis of the present state of our knowledge of the component parts of the encephalon, and we know of none other which will enable the student more readily to acquire a complete knowledge of its true character.

As a specimen of his manner of treating this part of his subject, and to show that our appreciation of it is not too great, we shall append his concluding remarks to this chapter. "The above descriptions," says Mr. Solly, "demonstrate that the encephalon or brain in the human subject is not a large solid mass of matter, in the interior of which are cavities scooped, as it were, out of its substance to be appropriately denominated ventricles, but that it really consists of ganglia or collections of cineritious neurine placed on each side of the mesial line. Some of them being the appropriate ganglia of the nerves of sensation; as, for instance, the olfactory ganglia, the optic ganglia, or tubercula quadrigemina, the auditory ganglia, or posterior pyramidal bodies, the pneumogastric ganglia, or restiform ganglia, the olivary bodies or lingual ganglia; the others being the motory or sensory ganglia, as the corpora striata and thalami nervorum opticorum. The hemispherical ganglia again, that they might present the greatest possible extent of surface, are folded up into innumerable plaits, and thus cover or surround every other ganglion within the cranium, so that on first removing the skull-cap, nothing can be seen but the convoluted surface of these extensive ganglia. And here let me insist upon this important principle in the study of the brain, which is also one of the first ideas that the student should acquire regarding its composition, namely, that it consists of corresponding or symmetrical parts on each side of the mesial plane, and instead of regarding the fissures of separation between its different portions as forming ventricles or cavities, he must direct his attention to the ganglia which bound the fissure, and the structures called commissures, which, connecting them together, cross the fissure and necessarily alter its character in different points, making, it is true, but not at any place changing the true fissure into a true bag or circumscribed cavity. The third, the iter a tertio ad quartum ventriculum, the fourth and fifth ventricles, we have already seen, are in truth no more than the successive dilatations from below upwards of the posterior fissure of the cord; difficult enough to be understood when these are viewed in different situations and unconnected one with the other, as in the ordinary mode of dissecting the brain, but which seem necessary and obvious where its parts are traced in connection with one another."—(p. 282.) He adds, that it is too much the custom to burden the memory of the student with fanciful and unmeaning names, and that instead of "puzzling himself with the absurd titles of hippocampus major and minor, pes hippocampi, tænia hippocampi, cornu ammonis, &c., he should be required simply to observe how the spinal columns appear to terminate superiorly in two large tubercles, the *corpora striata* and *thalami*, from the sides and under parts of which the hemispheres spring out, being afterwards reflected so as completely to envelope this bulbous extremity of the spinal cord. In the same way the third ventricle should be described as a fissure separating the two halves of the brain, his particular attention being directed to the commissures which pass across it to connect the different cerebral ganglia with one another. The description of the relative position of these ganglia, the commissures connecting them, and their relation to the ganglia and columns of the spinal cord, comprehend all the information which is either interesting or useful to the student."—(p. 283.)

The cerebral nerves, and the vessels employed in the cerebral circulation, occupy Parts VII. and VIII., when we reach

Part IX., in which the development of the brain is most philosophically handled. This chapter is the complement of the several preceding ones, and admirably illustrative of them, and the views contained in them. It is conceived and executed in the same happy manner. There are no useless details; all is subordinate to the main object—the anatomy and physiology of the human brain. The law of progressive development is nowhere more admirably exhibited than in the nervous centres, and nowhere do we find more decided proofs of the general harmony which prevails throughout the animal kingdom.

Part X., on the physiology of the cerebro spinal system, is meagre and unsatisfactory as compared with the preceding portions of the work. As an apology, the author states, that "in the anatomical sections of the work, he has purposely introduced much physiology, in order to give more interest to the anatomy than is usually attached to mere details of structure, without reference to function, so that in this section it will only be necessary to give a summary of what has been more or less touched on previously."—(p. 326.) Still, we think, more was required, and should have been done. We fully agree with Mr. Solly that it is "a subject which every candid physiologist approaches with great diffidence, for though much has been done within the last ten years, still much remains in doubtful obscurity." We concur with our author from actual experience, in thinking, "that notwithstanding the various sources of error to which experiments on living animals are exposed, some very important facts have been elicited, which, taken in conjunction with those derived from comparative anatomy, pathology, and observation during life, have afforded collateral evidence of the separate offices of different portions of the brain and nervous system. As regards our knowledge of the functions of the nerves and the spinal cord, experiments have been invaluable; and in reference to the encephalon, when taken in connection with the facts of comparative anatomy, they have shed much light on the subject, particularly those of Flourens and Bouillaud. In so far as this mode of investigation is admissible, the results obtained by these authors are perhaps the best authenticated and the most satisfactory of any."—(p. 327.)

Mr. Solly is quite disposed to accept the ingenious theory of Dr. Carpenter with regard to the offices of the anterior and posterior cerebral ganglia, the optic thalami and corpora striata, first enunciated by that physiologist in his review of Mr. Noble's work on the Brain, in the *British and Foreign Medical Review* for October, 1846, and subsequently in a communication to the British Association, in 1847. These ganglia Dr. Carpenter regards as forming part of the series of sensorial centres, of which there are other members in the olfactory, optic, and auditory ganglia; and that they are independent centres of action, and not mere appendages to the hemispheric ganglia. This view is sustained, he thinks, by the large quantity of vesicular neurine they contain, and from the absence of any correspondence in size between them and the hemispherical ganglia, particularly with respect to the corpora striata, which, in fishes, make up the principal bulk of the second pair of masses; in reptiles, birds, and the lower mammalia, they still form a very large portion of the cerebrum; and in man and the higher mammalia, are only subordinate, because of the large relative development of the hemispheric ganglia. On the other hand, there is scarcely any rudiment of the thalami optici to be discovered in fishes: their proportional size increases in reptiles, birds, and the lower mammalia; but it is only in man that their dimensions approach those of the corpora striata. The peculiar connection of the thalami optici with the posterior columns of the spinal cord, and their great development in man, suggest the idea, according to Dr. C., that they are the ganglia of *tactual* sensation; whilst the connection of the corpora striata with the anterior columns indicates the relationship with the motor function. The close relation between the thalami optici and the corpora striata, harmonizes with the fact that the greater number of muscular movements are directed by common sensation; " whilst the special connection established by the inter-cerebral commissure between the corpora striata, and the optic ganglia (tubercula quadrigemina) explains the peculiar influence of the sense of light in directing certain classes of muscular actions. The communication which is formed by the medullary substance of the cerebrum between these ganglia and the hemispheric ganglia seems to be the medium by which *sensations* are transmitted to the latter, to become the stimulus of intellectual operations, and by which the influence of *volition* is transmitted downwards to excite muscular motions through the corpora striata.

"The whole chain of sensory ganglia is regarded by Dr. C. as not only the instrument by which sensations are received, but also as the centre of those *automatic* muscular movements, which differ from those of a simply reflex character, in being dependent upon sensation. To this head, he refers the purely *instinctive* actions of the lower animals, as well as a variety of actions performed by the human being, both in health and disease; such as the consensual movements of the eyes, the regulation of the laryngeal muscles in the production of vocal sounds, the convulsive movements in hydrophobia, brought on by the sight or sound of water, &c. &c. And he considers the actions which become automatic by *habit*, as executed through the same channel; each movement being directly prompted by the sensation with which it has become associated."—(pp. 334, 335.)

Of the hemispherical ganglia, Mr. Solly rightly says: "If there is one point in the physiology of the brain more unequivocally demonstrated than another, it is that these ganglia are the instruments of the mind—the portion of the brain in which sensations are converted into perceptions, and give rise to ideas. Comparative anatomy, developmental anatomy, experiments on living animals, *observations on its size and form, as indicated by the size and form of the skull*, and last, but not least, pathology; all afford a mass of overwhelming evidence that this portion of the brain, and this only, is the cerebral organ of intellectual power."—(p. 335.) The italics in this quotation are our own, for Mr. Solly here appears as the advocate of phrenology—not violent or intemperate, but still decided—and assigns four reasons for believing that there must be a great deal of truth in it, in all of which, however, we discover nothing new, or particularly convincing.

The concluding and XIth Part, treats of the Diseases of the Brain, and has been added to the present edition. The author tells us, in his preface, that it was added because he believed it would render the work more useful. That it will increase its sale, under the false plea of making it more practical, we can readily conceive. But his limits were necessarily too confined to enable him to do the same justice to this portion of his subject, as had been done to the previous parts. Still, there is much valuable matter in it, and we only regret that it was not expanded into another volume. Some of the sections are capital summaries of all that is useful of the several cerebral affections of which they treat. We might especially indicate that on inflammation of the hemispherical ganglia; and we regret that we are unable to follow Mr. Solly more particularly in his pathological chapters.

The volume is a beautiful one, and is illustrated with one hundred and eighteen well executed wood engravings, for the general accuracy of which, the author vouches, many of them being from original drawings. We have noticed, however, very singular inaccuracies in the orthography of familiar proper names—as, *Diemebrok*, for Diemerbroeck; *Erastatus*, for Erasistratus; *Whyte*, for Whytt; *Durand-Fardell*, for Durand-Fardel; *Beclard*, for Béclard; *Pruss*, for Prus; *Pritchard*, for Prichard; *Lallemande*, for Lallemand; and several others.

In conclusion, we must state the exalted opinion we entertain of this volume. The author has carefully arranged all that is known upon the anatomy and physiology of the human brain; he has cleared the path of inquiry of all unnecessary incumbrances; he has simplified, and improved upon, many of the ordinary methods of description; and has raised for himself an enduring monument.

M. C.